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EXAMINER	
PATEL, JAY P	
ART UNIT	PAPER NUMBER
2616	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/824,553	JOHNSON ET AL.	
	Examiner	Art Unit	
	Jay P. Patel	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,19-23,26-34 and 37- 38* is/are rejected.

7)☒ Claim(s) *13-18, 24, 25, 35 and 36* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the remarks/amendment filed 09/08/2006.

2. Claims 1-38 are pending.

3. Claims 1-12, 19-23, 26-34 and 37-38 are rejected.

4. Claims 13-18, 24, 25, 35 and 36 are objected.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-12, 19-23 and 28-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albert et al. (U.S. Patent No. 6650641 B1) further in view of Jindal et al. (U.S. Patent 6092178).

3. In regards to claims 1 and 29, Albert discloses in figure 2 forwarding agents 231, 232, service mangers 241, 242 and a group of servers 220. Furthermore, figure 11 illustrates how a forwarding agent and a service manager implement NAT between a client and a virtual machine (see figure 11 and column 28, lines 1-19). The forwarding agent and the service manager are obvious over a translating device and the virtual machine is obvious over a server. The implementation of the NAT by the forwarding agent and a service manger is obvious over initiating communications, from a server behind the translating device, which effect the network address translation.

In further regards, Albert fails to particularly disclose monitoring the communication beyond the translation device to infer partitioning of servers behind the translation device into equivalent sets relative to the network topology induced by the network address translation. Jindal teaches the above-mentioned limitations in figure 2. Jindal describes that a load-balancing application may be exposed to requesting clients through a virtual server name; clients contact a DNS server to determine a server offering desired application. Jindal also mentions that it is well known in the art the DNS servers typically satisfy client request by resolving the virtual server name to an identity (i.e., a network address) of one network server within a pool of suitable servers (see column 7, lines 1-9). Jindal also mentions the a preferred server may be identified by the client on a regular or periodic basis, and may be the same as or different from the one previously identified; thus, client requests are distributed among the participating servers and the application is load-balanced (see column 6, lines 36-43). This disclosure is obvious over monitoring the communications beyond a translating device to infer partitioning of servers. Jindal also discloses that based on the selected policy, each status object 200 may measure the response time of its associated server (110, 112, 114) or the application instance operating on the server to implement load balancing policies (See figure 2 and column 8, lines 30-46). This disclosure is obvious over partitioning servers behind the translating device into equivalence sets relative to the network topology induced by the network address translation.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the Network address translation (NAT) between a client

and a virtual machine disclosed by Albert with the load balancing disclosed by Jindal. The advantage of doing so would be properly load balance client request based on NAT and load balancing policies. The motivation to combine comes from Jindal, which would be to enhance the functionality and flexibility of a network name service such as DNS (Domain Name Service).

In regards to claims 2 and 3, Albert discloses in figure 7, a wildcard affinity diagram. The wildcard affinity diagram includes a source IP address.

In regards to claim 4, the source IP address included in the wildcard affinity diagram also is obvious over a unique identification number in the message.

In regards to claim 5, Albert discloses in figure 13, a flowchart illustrating a process implemented on a forwarding agent for executing NAT as directed by a service manger. In the affinity step 1306, the forwarding agent checks the action specified in the affinity. If the action specifies that the packet be to be forwarded to the service manger, then control is transferred to step 1308 and the packet is sent to a service manger. If the action specifies that the packet is to undergo Nat then control is transferred to step 1310 where the source IP address is changed (see figure 13, and column 29, lines 56-67 and column 30, line 1). The action that specifies whether the packet is to go NAT or forwarded to the service manager, is obvious over distinguishing between communications affected by and not affected by network address translation.

In regards to claim 6, Albert discloses in figure 13, a flowchart illustrating a process implemented on a forwarding agent for executing NAT as directed by a service manger. If the action specifies that the packet is to undergo Nat then control is

transferred to step 1310 where the source IP address is changed (see figure 13, and column 29, lines 56-67 and column 30, line 1). The changing of the IP address is obvious over comparing an apparent source address of a message against an actual source address provided in the message.

In regards to claim 7, Albert discloses that to specify a single host the wildcard affinity include an IP address with a specific net mask. To specify the range of hosts (i.e. from 1.1.1.0 to 1.1.1.255), the wildcard affinity would include IP address of 1.1.1.0 with a net mask of 255.255.255.0 (see column 17, lines 47-54). The range of host with the IP address, anticipate, assessing a range of network addresses behind the translating device.

In regards to claim 8, from figure 2A, it is evident that the host whether they are clients or servers, are connected to the service managers and forward agents; therefore, the disclosure used with regards to claim 7, is also applicable to claim 8.

In regards to claims 9 and 10, figure 2A discloses a plurality of clients, forwarding agents, service mangers and servers. The servers communicate with network through forwarding agents (see column 6, lines 46-53). The forward agents have knowledge of the network and since the servers communicate to the network via the forwarding agents, it is anticipated that passive and active clients are distinguished and that messages are directed from the passive to the active client.

In regards to clam 11, the service manager and the forwarding agent, respectively contain processors 252 and 272. Both processors are respectively connected to a network interface. The network interface in the forwarding agent is used

to send and receive packets to and from other devices on the network (see column 9, lines 61-64). The network interface in the service manager allows the service manager to directly forward packets into the network from which it is providing a service (see column 10, lines 23-25). The respective processors and their connection to the network interface and its functions anticipate from a processor beyond the translating device, causing a message to a passive client to be redirected to an active client, the active client responsive communicating with the processor beyond the translating device.

In regards to claim 12, Albert discloses in figure 10F, a diagram illustration a NAT action segment (see figure 10F and column 24, lines 11-21). The NAT action segment is obvious over maintaining at least one translated address set.

4. In regards to claim 19, forwarding agents 231, 232, service mangers 241, 242 and a group of servers 220. Furthermore, figure 11 illustrates how a forwarding agent and a service manager implement NAT between a client and a virtual machine (see figure 11 and column 28, lines 1-19). The forwarding agent and the service manager are obvious over a translating device and the virtual machine is obvious over a server. The implementation of the NAT by the forwarding agent and a service manger is obvious over a processor routine for receiving communications, from a server behind the translating device, which effect the network address translation.

In further regards, Albert fails to particularly disclose monitoring the communication beyond the translating device to infer partitioning of servers behind the translation device into equivalent sets relative to the network topology induced by the

network address translation. Jindal teaches the above-mentioned limitations in figure 2. Jindal describes that a load-balancing application may be exposed to requesting clients through a virtual server name; clients contact a DNS server to determine a server offering desired application. Jindal also mentions that it is well known in the art the DNS servers typically satisfy client request by resolving the virtual server name to an identity (i.e., a network address) of one network server within a pool of suitable servers (see column 7, lines 1-9). Jindal also mentions the a preferred server may be identified by the client on a regular or periodic basis, and may be the same as or different from the one previously identified; thus, client requests are distributed among the participating servers and the application is load-balanced (see column 6, lines 36-43). This disclosure is obvious over monitoring the communications beyond a translating device to infer partitioning of servers. Jindal also discloses that based on the selected policy, each status object 200 may measure the response time of its associated server (110, 112, 114) or the application instance operating on the server to implement load balancing policies (See figure 2 and column 8, lines 30-46). This disclosure is obvious over a processor routine for partitioning servers behind the translating device into equivalence sets relative to the network topology induced by the network address translation.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the Network address translation (NAT) between a client and a virtual machine disclosed by Albert with the load balancing disclosed by Jindal. The advantage of doing so would be properly load balance client request based on NAT

and load balancing policies. The motivation to combine comes from Jindal, which would be to enhance the functionality and flexibility of a network name service such as DNS (Domain Name Service).

In regards to claim 20, Albert discloses in figure 7, a wildcard affinity diagram. The wildcard affinity diagram includes a source IP address.

In regards to claim 21, Albert discloses in figure 13, a flowchart illustrating a process implemented on a forwarding agent for executing NAT as directed by a service manger. If the action specifies that the packet is to undergo Nat then control is transferred to step 1310 where the source IP address is changed (see figure 13, and column 29, lines 56-67 and column 30, line 1). The changing of the IP address is obvious over comparing an apparent source address of a message against an actual source address provided in the message.

In regards to claim 22, Albert discloses in figure 10F, a diagram illustration a NAT action segment (see figure 10F and column 24, lines 11-21). The NAT action segment is obvious over including at least one translated address set, the source address being stored in the translated address set.

In regards to claim 23, Albert discloses in figures 2B and 2C that the forwarding agent and the service manager respectively contain memories 254 and 274 connected to the respective processors (see figures 2B and 2C). The memories anticipate, the processor coupled to the memory, the processor routine storing a database of translated address sets in the memory. Furthermore, Albert discloses in figure 10F, a

diagram illustration a NAT action segment (see figure 10F and column 24, lines 11-21), which contains the translated address set as, stated in regards to claim 22.

1. In regards to claim 28, forwarding agent and the service manager respectively contain memories 254 and 274 connected to the respective processors (see figures 2B and 2C). The memories are obvious over a computer usable medium for storing data.

In further regards to claim 28 and claim 30, Albert discloses in figure 2, forwarding agents 231, 232, service mangers 241, 242 and a group of servers 220. Furthermore, figure 11 illustrates how a forwarding agent and a service manager implement NAT between a client and a virtual machine (see figure 11 and column 28, lines 1-19). The implementation of the NAT by the forwarding agent and a service manger is obvious over receiving communications from a network device effecting network address translation.

In further regards, Albert fails to particularly disclose infer partitioning of servers behind the translation device into equivalent sets relative to the network topology induced by the network address translation. Jindal teaches the above-mentioned limitations in figure 2. Jindal describes that a load-balancing application may be exposed to requesting clients through a virtual server name; clients contact a DNS server to determine a server offering desired application. Jindal also mentions that it is well known in the art the DNS servers typically satisfy client request by resolving the virtual server name to an identity (i.e., a network address) of one network server within a pool of suitable servers (see column 7, lines 1-9). Jindal also mentions the a preferred server may be identified by the client on a regular or periodic basis, and may

be the same as or different from the one previously identified; thus, client requests are distributed among the participating servers and the application is load-balanced (see column 6, lines 36-43). This disclosure is obvious over monitoring the communications beyond a translating device to infer partitioning of servers. Jindal also discloses that based on the selected policy, each status object 200 may measure the response time of its associated server (110, 112, 114) or the application instance operating on the server to implement load balancing policies (See figure 2 and column 8, lines 30-46). This disclosure is obvious over partitioning servers behind the translating device into equivalence sets relative to the network topology induced by the network address translation.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the Network address translation (NAT) between a client and a virtual machine disclosed by Albert with the load balancing disclosed by Jindal. The advantage of doing so would be properly load balance client request based on NAT and load balancing policies. The motivation to combine comes from Jindal, which would be to enhance the functionality and flexibility of a network name service such as DNS (Domain Name Service).

In regards to claim 31, Albert discloses in figure 7, a wildcard affinity diagram. The wildcard affinity diagram includes a source IP address.

In regards to claim 32, Albert discloses in figure 13, a flowchart illustrating a process implemented on a forwarding agent for executing NAT as directed by a service manger. If the action specifies that the packet is to undergo Nat then control is

transferred to step 1310 where the source IP address is changed (see figure 13, and column 29, lines 56-67 and column 30, line 1). The changing of the IP address is obvious over comparing an apparent source address of a message against an actual source address provided in the message.

In regards to claim 33, Albert discloses in figure 10F, a diagram illustration a NAT action segment (see figure 10F and column 24, lines 11-21). The NAT action segment is obvious over including at least one translated address set, the source address being stored in the translated address set.

In regards to claim 34, Albert discloses in figures 2B and 2C that the forwarding agent and the service manager respectively contain memories 254 and 274 connected to the respective processors (see figures 2B and 2C). The memories anticipate, storing a database of translated address sets. Furthermore, Albert discloses in figure 10F, a diagram illustration a NAT action segment (see figure 10F and column 24, lines 11-21), which contains the translated address set as, stated in regards to claim 33.

5. Claims 26-27 and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albert et al. (U.S. Patent No. 6650641 B1) further in view of Cunningham et al. (US Patent 6888837 B1).

6. In regards to claim 26, Albert discloses in figure 2 forwarding agents 231, 232, service mangers 241, 242 and a group of servers 220. Furthermore, figure 11 illustrates how a forwarding agent and a service manager implement NAT between a client and a virtual machine (see figure 11 and column 28, lines 1-19). The forwarding

agent and the service manager, reads on an apparatus located beyond a network-translating device to determining a topology of a network.

In further regard to claims 26 and 37, the service manager and the forwarding agent, respectively contain processors 252 and 272. Both processors are respectively connected to a network interface. The network interface in the forwarding agent is used to send and receive packets to and from other devices on the network (see column 9, lines 61-64). The network interface in the service manager allows the service manager to directly forward packets into the network from which it is providing a service (see column 10, lines 23-25). The processors read on a processor behind a network address translation device coupled to a network interface for initiating communications to a server beyond the network address translation device effecting network address translation.

In further regards to claims 26 and 37, the processors are contained within the service manager or the forwarding agent, which have addresses of their own and therefore, also read on the processor routing provides the actual network address of the processor in a message of the communications.

In regards to claims 27 and 38, the service manager and the forwarding agent, respectively contain processors 252 and 272. Both processors are respectively connected to a network interface. The network interface in the forwarding agent is used to send and receive packets to and from other devices on the network (see column 9, lines 61-64). The connection between the processor and the network interface, read on

the said processor issuing communications in response to receiving a communication from behind the network address translation device.

In further regards to claims 26 and 37, Albert fails to particularly disclose, providing the actual network address of the processor in a message of the communications unaffected by network address translation. Cunningham teaches the above-mentioned limitation.

Figure 2A shows a source address translation table for address domain 1 of figure 1. The NAT 102, maps the host X local address (i.e A) to the host X global address for destination domains 2, 3, and 4. The address mapping is A12, A13 and A14. Therefore, the NAT maintains the local address of the host X in the source domain in the address translation table (network address unaffected by network address translation) (see figures 1, 2A, 2B and 2C and column 5, lines 40-46).

Therefore, would have been obvious to one skilled in the art at the time the invention was made to combine the Network address translation (NAT) between a client and a virtual machine disclosed by Albert with the NAT local to global address translation taught by Cunningham. The motivation to do so would have been to include the local address of the even during network address translation to an outside domain.

Response to Arguments

7. Applicant's arguments filed 09/08/2006 with regards to claims 1 have been fully considered but they are not persuasive.

8. The applicant argues on page 10 lines 6-8 that Jindal does not disclose monitoring communications beyond a translating device to infer partitioning of servers behind the translating device. However, the examiner respectfully disagrees. Jindal teaches the above-mentioned limitations in figure 2. Jindal describes that a load-balancing application may be exposed to requesting clients through a virtual server name; clients contact a DNS server to determine a server offering desired application. Jindal also mentions that it is well known in the art the DNS servers typically satisfy client request by resolving the virtual server name to an identity (i.e., a network address) of one network server within a pool of suitable servers (see column 7, lines 1-9). Jindal also mentions the a preferred server may be identified by the client on a regular or periodic basis, and may be the same as or different from the one previously identified; thus, client requests are distributed among the participating servers and the application is load-balanced (see column 6, lines 36-43). This disclosure is obvious over monitoring the communications beyond a translating device to infer partitioning of servers. Jindal also discloses that based on the selected policy, each status object 200 may measure the response time of its associated server (110, 112, 114) or the application instance operating on the server to implement load balancing policies (See figure 2 and column 8, lines 30-46).

9. Furthermore, the applicant also argues on page 10 lines 23-25 that the teaching of Jindal and Albert in combination results in DNS system with load balancing. However, on page 7 of the specification of the present application, it is stated, "Since a proxy server typically has a single public address, a subnet may employ more than one

proxy server to perform load balancing and provide multiple public (outbound) addresses." Therefore, it is the examiner's interpretation that load balancing to provide multiple public addresses using multiple proxy servers is also partitions the proxy servers.

10. In regards to claim 26, applicant argues that Albert fails to teach providing the actual network address of the processor unaffected by the network address translation. The examiner agrees and therefore has relied on Cunningham et al. (US Patent 6888837 B1) to teach this limitation (refer to the rejection of claim 26 above).

Conclusion

11. Claims 13-18, 24, 25, 35 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jay P. Patel whose telephone number is (571) 272-3086. The examiner can normally be reached on M-F 9:00 am - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JPP 12/17/06
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